

## **REMARKS**

### **Claim Status**

Claims 1-24 were originally presented for examination in this application. In a preliminary amendment filed on May 14, 2004, Applicants added new claims 25-31. A restriction requirement issued on April 25, 2007, and Applicants elected claims 1-21 and 25-31 in response thereto. An office action issued on August 24, 2007, in which all pending claims were rejected, and an amendment and response was filed in which certain claim amendments were presented to overcome the rejections. A final office action issued on April 14, 2008, upholding the rejections, and a subsequent response was filed on May 29, 2008. A subsequent office action issued on July 11, 2008, again rejecting all pending claims, and a response was filed on November 4, 2008. An office action was then issued on January 26, 2009, in which:

- Claims 1, 2, 8, 9, 12, 13, 15, 16, 19, 25, 26 and 29 were rejected under 35 U.S.C. §103(a) as being obvious in light of a paper by Olson et al. entitled "Moving Object Detection and Event Recognition Algorithms for Smart Cameras" ("Olson").
- Claims 3 – 7 were rejected under 35 U.S.C. §103(a) as being obvious in light of Olson and further in view of U.S. Patent No. 6,570,608 to Tserng ("Tserng") and U.S. Patent No. 5,845,009 to Marks et al. ("Marks").
- Claims 10, 11, 17, 18, 20, 27, 28 and 30 were rejected under 35 U.S.C. §103(a) as being obvious in light of Olson and Tserng and further in view of U.S. Patent No. 6,371,805 to Brodsky et al. ("Brodsky").
- Claims 14, 21 and 31 were rejected under 35 U.S.C. §103(a) as being obvious in light of Olson and Tserng and further in view of U.S. Patent No. 6,441,846 to Carlbom et al. ("Carlbom").

In this response, Applicants have amended claims 1, 15, and 17-21 to address these rejections. No new matter has been added.

**Claim Rejections Under 35 U.S.C. §103(a)**

*Independent claims 1, 15 and 19*

Independent claims 1, 15 and 19 and each recite using video frames generated “over time” to track objects “with respect to a monitored environment” as they traverse the environment in a manner that is “independent of calibration among the image sensors and the monitored environment.”

In previous Office actions, the Examiner cited numerous references, each requiring some form of calibration either among the cameras or with reference to a “map” that defines the relationships between the fields-of-view of the cameras and the monitored environment. The newly-cited Olson reference is no different. While Olson may be able to detect moving objects and track them from frame to frame within a video stream, the techniques he describes cannot track the detected images with respect to a monitored environment without the aid of an image-to-map coordinate transformation.

More specifically, the Olson reference states that “in order to locate objects seen in the image, with respect to a map, it is necessary to establish a mapping between image and map coordinates.”<sup>1</sup> To establish this map, “a user draw[s] quadrilaterals on horizontal surfaces visible in an image, and the corresponding quadrilaterals on a map.”<sup>2</sup> Based on these two sets of quadrilaterals, “a warp transformation from image to map coordinates is constructed.”<sup>3</sup> Clearly, the Olson system relies heavily on calibration between the cameras and the monitored environment to track multiple objects — a necessity not only avoided by the claimed invention but expressly excluded in the present claims.

In particular, the claims recite techniques and systems that are able to track objects as they pass through a monitored environment based on the location and movement of the object itself, without the need for calibration of the cameras. Instead of relying on mappings and coordinates, the claims call for analyzing video frames over time, which may then facilitate the determination of proper camera hand-offs and/or transitions, for example. As a result, there is no need for floor plans, tracking devices, maps, layouts or camera positioning calculations at the

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<sup>1</sup> Olson, pg. 165.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*

time of implementation or when floorplans or camera positions change – a costly and time consuming drawback to each of the cited references and the currently-cited Olson system.

Independent claims 17, 18 and 20

Independent claims 17 and 20 recite applying the monitoring and tracking techniques of claims 1 and 15 in a particular environments but still include the distinguishing limitations of claims 1 and 15 described above. The Examiner has cited Brodsky for the limited purpose of illustrating that surveillance may be performed in parking lots, and as such, Brodsky does not cure the deficiencies of Olson.

Independent claim 21

Independent claim 21 recites applying the monitoring and tracking techniques of claims 1 and 15 in a particular environments but still include the distinguishing limitations of claims 1 and 15 described above. The Examiner has cited Carlbom for the limited purpose of illustrating that surveillance may be performed retail establishments, and as such, Carlbom does not cure the deficiencies of Olson.

Thus, because none of the cited references teach or suggest every element of independent claims 1, 15, 17, 18, 19, 20 and 21, Applicants respectfully submit that these references, either alone or in combination, fail to anticipate or render these claims obvious. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 15, 17, 18, 19, 20 and 21 under 35 U.S.C. §103(a), as well as those claims that depend directly or indirectly therefrom.

### **CONCLUSION**

Applicants respectfully requests allowance of claims 1-21 and 25-31 in due course. The Examiner is invited to contact Applicants' undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,

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